

EXHIBIT 3

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

**IN RE FOREIGN EXCHANGE BENCHMARK
RATES ANTITRUST LITIGATION**

No. 1:13-cv-7789-LGS

REPLY EXPERT REPORT OF ERIC ROBIN

August 13, 2020

Contains information designated as Highly Confidential

meant the pricing provided by the internal streaming platform or SBP was valid. Therefore we would use such a price to quote our client quickly and accurately. Actions of this nature would also reflect that the level of skewing shown in the streaming price was accurate enough for small- and medium-size type of spot FX transactions up to the approved threshold of dealing size. This *modus operandi* would also help increase the productivity of spot FX desks to distribute prices quickly and reliably in the case of multiple and repetitive voice queries from FX sales desks. This was true at RBS and, on the basis of my experience working at other banks and knowing the way other dealers in the market behaved, also the case generally for other major FX market makers.⁸⁴

92. In this regard, it is also worth noting that many of the quants that built the Defendant bank algorithms moved from bank to bank, taking their knowledge, expertise, and behaviour with them. By way of example, Mark Meredith and Chris Purves worked on Barx, the algorithmic FX platform at Barclays from 2005-2010 prior to joining UBS; Meredith⁸⁵ recently left UBS in 2019 and moved to head Citibank's electronic trading quant analytics. E-FX quant trader Brandon Liu⁸⁶ worked at Morgan Stanley and Bank of America during the 2007-2016 period and then joined State Street. This circulation of quant talents between banks would have enabled each of them to build pricing algorithms for their SBPs and voice traders.

93. Dr. Melvin also criticizes me (at ¶ 110) when I describe the existence of a “feedback loop” between voice and SBP quotes in my report at ¶¶ 68-69. This critique too reflects his lack of experience working in FX at a market maker. Based on my decades of experience in the FX market, there is a strong and permanent interaction between pricing shown in voice trades originated by human dealers and the Automatic Trading systems powered by the algorithms within the SBPs for all Defendant banks. What I observed has been substantiated by the U.S. Federal Reserve. Focusing on the observation of EUR/USD, USD/JPY, and EUR/JPY during 2006-2007, Chaboud and his colleagues⁸⁷ at the Fed said in 2009: “By the end of 2007, there were more computer to computer trades than human to human trades. But the most common type of trade was computers trading on prices posted by humans. We believe this reflects computers taking advantage of short-lived triangular arbitrage opportunities, where prices set in the euro-dollar and dollar-yen markets are briefly out-of-line with the euro-yen cross rate.”

94. The feedback loops in both directions—between SBPs and voice, and vice versa—are observable at all major market makers and their respective SBPs. These feedback mechanisms

⁸⁴ BARC-FX-CIV_00203378 at 3384 (██████████ asks ██████████ how wide a spread is BARX, Barclays Single Bank Platform, showing in 10 million EUR/USD because he is thinking about widening his own spreads).

⁸⁵ <https://www.fx-markets.com/fx-week/news/2287254/ubs-fx-quant-head-moves-to-citi>.

⁸⁶ <https://www.fx-markets.com/people/4261141/liu-rejoins-state-street-as-e-fx-quant-trader>.

⁸⁷ Alain Chaboud, Benjamin Chiquoine, Erik Hjalmarsson, & Clara Vega, “*Rise of the Machines: Algorithmic Trading in the Foreign Exchange Market*,” Board of Governors of the Federal Reserve System, Int’l Fin. Discussion Papers, Number 980, Oct. 2009, page 6 by, available at <https://www.federalreserve.gov/pubs/ifdp/2009/980/ifdp980.pdf>.

incorporate skewed pricing consistent with the Defendant banks' central spot risk management systems. I have shown numerous examples in this report whereby voice spot inquiry is taking place by large institutional clients having spread matrices in place. In order to make good on these indicated spreads 90% of the time or more, spot market makers will be incentivised to have coherent and consistent pricing. Voice and electronic spot FX pricing are coherent, because the prices shown by voice or by SBPs will have to be very close or identical, and this is illustrated by the existence of the feedback loop; market makers will aim to provide a unique price for the same customer in a given amount and currency. Voice and electronic spot FX pricing are also consistent as spread matrices do apply most of the time, and this consistency is not only desired by the customers but by the banks themselves in assuring consistent quotes to customers across platforms.

95. Dr. Melvin then suggests (at ¶ 12.h) that price skewing and spread widening on one bank's SBP would not necessarily have an impact on pricing on other platforms. This allegation demonstrates either Dr. Melvin's ignorance of basic FX market mechanisms or his willingness to ignore his contrary statements made in other venues. Simply put, price distortion among trading platforms would create arbitrage opportunities. As Dr. Melvin himself has conceded, under oath, the presence of high frequency traders, as well as other arbitrageurs, "keep the prices in line so that different trade venues don't get out of line."⁸⁸ If there are price differences among platforms, high frequency trading traders would buy where price is lower and sell where the price is higher, and this practice would bring the prices back in line.⁸⁹ As a result, the FX prices, for example exchange rate for 50 million EUR/USD, would be pretty much the same across all venues globally at a point in time.⁹⁰ As Dr. Melvin conceded, there is one world market and one price at any given point in time.⁹¹ Therefore, spread widening on any electronic trading platform would have a market-wide impact.

96. Dr. Melvin argues, without citation, that the price generated on the SBP operated by RBS would not be used for pushing prices via alternative ECNs. This claim is contrary to my own experience. In my merits report (at pp. 18, 68), I described how the electronic price is produced on SBPs for individual clients. To be clear, the spreads on SBPs take into account the spreads residing on spread matrices in the risk management engine. This process is managed automatically, with efficiency and speed, by proprietary algorithms coded by FX quants at the individual Defendant banks. I know this because from a risk management perspective, the broadcasting of prices by the market maker is a coherent process whereby the bank's price pushed on one platform cannot be inconsistent with a price shown on another platform. If only the bid side or offer side is shown via interdealer platforms such as EBS or Reuters, this quote will be a reflection of the interest of the bank for a given currency in term of size and skew. This consistency can only take place through an integrated risk management system at the market making bank where all prices and transactions are centralised and netted

⁸⁸ *Usher* Trial Transcript, 1876:19-21.

⁸⁹ *See id.* at 1813:20-1814:4.

⁹⁰ *See id.* at 1814:7-10.

⁹¹ *See* Melvin Dep. at 174:8-11.